

Sub
C2
11. A system for measuring the corrosion rate of metals in a hostile environment comprising a coupon including:

a substrate;

a corrosive long and narrow thin film metal resistive element carried on said substrate for exposure to the hostile environment;

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a second reference long and narrow thin film metal resistive element carried on substrate shielded from the hostile environment, said first and second thin film elements positioned on said substrate close enough to each other throughout their paths to experience substantially the same thermal environment, such that changes in the resistance of said first and second element as a function of temperature are identical even when said coupon is exposed to high, variable heat fluxes in said hostile environment;

means for driving a current I through said first and second thin film metal elements;

means for measuring the voltage VC generated across said corrosive thin film metal elements and the voltage VR generated across said reference thin film element by the current flowing therethrough; and

means for processing said current and voltages to provide a measure of change in resistance of the corrosive thin film metal element.

Sub
C4
14. A coupon for use in measuring the corrosion rate of metals exposed to a high-temperature hostile environment comprising:

a substrate;

a first thin long and narrow elongated strip of metal or metal alloy adapted to be exposed to the hostile environment carried by said substrate; and

a second thin long and narrow elongated strip of the same metal or metal alloy as the first carried by the substrate and shielded from the hostile environment but positioned on close enough to said first element to experience substantially the same thermal environment as said first element, such that changes in the resistance of said first and second element as a function of temperature are identical even when said coupon is exposed to high, variable heat fluxes in said hostile environment.